



Docket No.: 268844USOP CT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:  
Hiroshi SHIHO, et al.

GROUP: 1765

SERIAL NO: 10/529,742

EXAMINER: CHEN, K.

FILED: January 6, 2006

FOR: POLISHING PAD FOR SEMICONDUCTOR  
WAFER AND LAMINATED BODY FOR  
POLISHING OF SEMICONDUCTOR  
WAFER EQUIPPED WITH THE SAME AS  
WELL AS METHOD FOR POLISHING OF  
SEMICONDUCTOR WAFER

DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

Sir:

Now comes Yukio Hosaka who deposes and states that:

1. I am a named inventor in the above-identified application.
2. I am a graduate of Doshisha University and received my MASTER degree in the year 1993.
3. I have been employed by JSR Corporation since 1993, and I have been conducting research in the field of developping cmp pads for 7 years.
4. I have reviewed and understood the contents of Hasegawa (U.S. Published Application No. 2002/0173231), or a Japanese language equivalent thereof, which is cited by the Examiner against the claims.

5. Purpose of the Experiment:

The purpose of the present experiment was to confirm that the polishing pad of Claims 1, 6, and 8 of the application can be used to carry out polishing without lowering the

level of polishing performance, that end point detection can be performed efficiently by an optical method, and that the polishing pad is outstanding in terms of its properties of a polishing pad for a semiconductor wafer.

#### 6. Experiment:

For purposes of Experiments 1-13 a polishing pad for a semiconductor wafer was prepared in which the thickness of the window portion and the content of a water-soluble particle were made as set out in the following Table 1. Then, transmission was measured by a method described in the specification of the above-identified application.

Moreover, the polishing of a hot-oxidized layer wafer was performed with the use of the polishing pads described in Table 1, and polishing performance was evaluated by confirming, by means of visual observation, the number of scratches on the hot-oxidized layer wafer. In Table 1, cases where the number of scratches was five or less are indicated by the symbol "O" and cases where the number of scratches was six or more are indicated by the symbol "X".

Moreover, dressing was performed on the polishing pad for a semiconductor wafer under conditions described below, and the life of the pad was evaluated. In Table 1, cases where the polishing pad could be used for 120 minutes or more of the dressing time are indicated by an "O", and cases where the polishing pad could only be used for less than 120 minutes are indicated with an "X".

In Table 1, polishing pads outside the scope of the inventions of Claims 1, 6, and 8 are annotated with the symbol "\*".

#### Dressing conditions:

Diamond size: #200

Down force: 31bf (pounds)

Number of revolutions (dresser/table): 90/85 rpm

Dressing time: 30 sec. (*ex situ*)

Table 1

Experiment	Thickness of window portion (mm)	Content of water-soluble particle (% by volume)	Rate of permeation (transmission)	Polishing performance (Number of scratches)	Life of the pad
1	0.5*	0.1*	50	-	X
2	0.1	0.1	45	X	O
3	0.1	0.8	44	O	O
4	0.5	2.0	38	O	O
5	0.5	10.0*	23	-	X
6	1.0	2.0	33	O	O
7	1.0	10.0*	21	O	X
8	2.0	20.0*	7	O	O
9	2.5	3.0	30	O	O
10	2.8	2.0	21	O	O
11	2.8	4.9	19	O	O
12	2.8	10.0*	10	O	O
13	3.5**	4.9	0	O	O

#### 7. Results of Experiments

From the Experiments 3, 4, 6, 9, 10 and 11 relating to the inventions described in Claims 1, 6, and 8, it is evident that not only was the rate of transmission 19% or more in all cases, but also that polishing performance and the life of the pad were satisfactory. On the other hand, from the combinations other than those of the inventions of Claims 1, 6, and 8, it is evident that the evaluation of at least one of among properties of transmission, polishing performance and the life of the pad was unsatisfactory.

From the above description, it is my opinion that a polishing pad having a content of water soluble particles in an amount of Q5-5% by volume and a light transmitting part thickness of Q1.3 mm is superior in terms of the properties of transmission, polishing performance and the life of the pad and it was also confirmed that extremely significant and selective effects can be obtained with the inventions of Claims 1, 6, and 8.

8. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed

to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

9. Further deponent saith not.

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April 18, 2007

Date